Delaware Economic Development Office dedo.delaware.gov Innovation@work.

Anticrater agent compositions for use in cathodic electrocoating

Description of Technology: This invention is directed to a cathodic electrocoating composition and in particular to a cathodic electrocoating composition containing an anticrater agent which significantly reduces craters and improves the smoothness of an electrodeposited film of the composition.

Patent Listing:

1. **US Patent No. 5,883,276**, Issued March 16, 1999, "Anticrater agent compositions for use in cathodic electrocoating"
   http://patft.uspto.gov/netacgi/nph-Parser?Sect2=PTO1&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN%2F5883276

Market Potential: The coating of electrically conductive substrates by an electrodeposition process, also called an electrocoating process is a well known and important industrial process. Electrodeposition of primers to automotive substrates is widely used in the automotive industry. In this process, a conductive article, such as an autobody or an auto part, is immersed in a bath of a coating composition of an aqueous emulsion of film forming polymer and acts as an electrode in the electrodeposition process. An electric current is passed between the article and a counter-electrode in electrical contact with the aqueous emulsion, until a desired coating is deposited on the article. In a cathodic electrocoating process, the article to be coated is the cathode and the counter-electrode is the anode.

An additive or agent is needed for electrocoating compositions so that crater-free, smooth and even finishes are formed on electrodeposition and curing. Chung et al U.S. Pat. No. 5,356,960 issued Oct. 18, 1994 shows an anticrater additive that forms a crater free, smooth and even finish. However, when this additive is used in an electrocoating composition that is baked in an indirect gas oven after application to a metal substrate such as an automobile or truck body, this anticrater additive migrates very readily to the surface of the electrocoating composition during baking. Any primer compositions applied over such a surface containing polymeric melamine crosslinking agents adhere poorly to the electrocoat composition and hence, adhesion failure of any topcoat applied over the primer is readily evident. An anticrater additive is needed that will not migrate to the surface of the deposited electrocoating composition during baking and should not adversely affect other properties such as the throwing power of the electrocoating bath, the curing of the deposited coating or the film properties of the resulting finish.

Benefits:

- Crater-free finishes on electrodeposition and curing
- Smooth and even finishes on electrodeposition and curing

Applications:

- Automotive industry

Contact: Ken Anderson
Director, Entrepreneurial & Small Business Support, Delaware Economic Development Office (DEDO)
Carvel State Building, 820 French Street, Wilmington, DE, 19801
Phone: (302) 577-8496, Fax: (302) 577-8499, Email: Kenneth.R.Anderson@state.de.us